DETAILED ACTION

This Office Action is responsive to Applicants' application filed on November 19, 2003.

Claims **1-8** are pending and presented for examination.

Information Disclosure Statement

1.   The information disclosure statement (**IDS**) submitted on 11/19/03 and 1/23/08 has been

considered by the examiner.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

   Claims 1-8 are rejected under 35 U.S.C. 101 because the claimed invention is directed to

non-statutory subject matter. The claims are directed to software per se since all of the units are

software modules for performing the intended functions.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims **1-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant

Admitted Prior Art (hereinafter, AAPA) in view of Ueno et al (U.S. Pub. No. 2002/0010770).

As per claims **1** and **7-8**, discloses a network management apparatus for managing a transmission network in which one (1) or more currently-used route(s) for transmitting signals is/are set, and an alternative route(s) corresponding respectively to the currently-used route(s) and used when a failure(s) has occurred to the currently-used route(s) has/have been defined in advance, and each alternative route is formed by backup connections for the alternative route being set by each node present on the alternative route, comprising:

- an operation unit registering in the storage unit the alternative route management data corresponding to the currently-used route(s) to which a failure(s) has/have occurred, on having received a failure occurrence notice(s) of the currently-used route(s) (see AAPA page 1, line 27 and page 2 lines 1-10); and

- a determination unit identifying the currently-used route(s) corresponding to the backup connections based on a creation notice(s) of the backup connections and the currently-used route data stored in the storage unit, on having received from nodes the creation notice(s) of the backup connections (see AAPA, page 2, lines 11-27).

However, AAPA does not explicitly disclose:

- a storage unit storing backup connection information data containing information on the backup connections comprising the alternative route corresponding to each currently-used route, currently-used route data containing information on the currently-used route(s) corresponding to each backup connection and alternative route management data for managing setting status of the backup connections comprising the alternative route(s);

- switching the setting status of the backup connections in the alternative route management data corresponding to the identified currently-used route(s) to a setting

completion and determining a recovery completion of the currently-used route(s) when
the setting status of all the backup connections corresponding to the currently-used
route(s) to which the failure(s) has/have occurred become the setting completion.

Ueno discloses a network management system comprising:

- a storage unit storing backup connection information data containing information on the
  backup connections comprising the alternative route corresponding to each currently-
  used route, currently-used route data containing information on the currently-used
  route(s) corresponding to each backup connection and alternative route management data
  for managing setting status of the backup connections comprising the alternative route(s)
  (abstract and paragraphs 0112-0119);

- switching the setting status of the backup connections in the alternative route
  management data corresponding to the identified currently-used route(s) to a setting
  completion and determining a recovery completion of the currently-used route(s) when
  the setting status of all the backup connections corresponding to the currently-used
  route(s) to which the failure(s) has/have occurred become the setting completion (abstract
  and paragraphs 0112-0119).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the
invention was made to modify AAPA by including an alternate route information storage unit for
storing and setting alternate route information for links on the network when a fault occurs for
the purpose of proving a network management system which is able to shorten a time required up
to detecting a fault after the occurrence of the fault and to reduce a network communication

quality deterioration in a network management system performing a fault restoration process in a hierarchical network.

As per claim **2**, AAPA discloses the invention substantially as claims discussed above.

However, AAPA does not explicitly disclose:

- wherein the alternative route management data contains data representing recovery status of the corresponding currently-used route(s) and the determination unit determines the recovery completion of the currently-used route(s) by setting the data representing the recovery status to "recovered" when all the setting status of the backup connections corresponding to the currently-used route(s) to which the failure(s) has/have occurred become the setting completion.

Ueno discloses a network management system comprising:

- wherein the alternative route management data contains data representing recovery status of the corresponding currently-used route(s) and the determination unit determines the recovery completion of the currently-used route(s) by setting the data representing the recovery status to "recovered" when all the setting status of the backup connections corresponding to the currently-used route(s) to which the failure(s) has/have occurred become the setting completion (abstract and paragraphs 0112-0119).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify AAPA by including an alternate route information storage unit for storing and setting alternate route information for links on the network when a fault occurs for the purpose of proving a network management system which is able to shorten a time required up to detecting a fault after the occurrence of the fault and to reduce a network communication

quality deterioration in a network management system performing a fault restoration process in a
hierarchical network.

As per claims **3** and **4**, AAPA discloses wherein:

- the determination unit, on having received the creation notice(s) of the backup
  connections, when the alternative route management data of the currently-used route(s)
  corresponding to the creation notice(s) of the backup connections is not registered in the
  storage unit, registers the backup connections of the received creation notice(s), in the
  creation connection information management data (see AAPA, page 2, lines 11-27);

- the operation unit, on having received the failure occurrence notice(s) of the currently-
  used route(s), registers the alternative route management data corresponding to the
  currently-used route(s) to which the failure(s) has/have occurred (see AAPA page 1, line
  27 and page 2 lines 1-10).

However, AAPA does not explicitly disclose:

- the storage unit further stores creation connection information management data in which
  the backup connections having notified of from the nodes is registered; and

- in the storage unit and sets the setting status of the backup connections same as the
  backup connections registered in the creation connection information management data to
  the setting completion among the setting statuses of backup connections of the registered
  alternative route management data.

Ueno discloses a network management system comprising:

- the storage unit further stores creation connection information management data in which the backup connections having notified of from the nodes is registered (abstract and paragraphs 0112-0119);

- in the storage unit and sets the setting status of the backup connections same as the backup connections registered in the creation connection information management data to the setting completion among the setting statuses of backup connections of the registered alternative route management data (abstract and paragraphs 0112-0119).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify AAPA by including an alternate route information storage unit for storing and setting alternate route information for links on the network when a fault occurs for the purpose of proving a network management system which is able to shorten a time required up to detecting a fault after the occurrence of the fault and to reduce a network communication quality deterioration in a network management system performing a fault restoration process in a hierarchical network.

As per claim **5**, AAPA discloses the invention substantially as claims discussed above.

However, AAPA does not explicitly disclose:

- the storage unit further stores overlapping connection management data representing the number of the currently-used route(s) corresponding to each backup connection;

- the determination unit, on receiving the creation notice of the backup connections from the nodes, identifies the currently-used route(s) corresponding to the backup connections of the creation notice(s) based on the currently-used route data and registers in the overlapping connection management data the number of the currently-used route(s)

which registered in the alternative route management data and data representing which recovery status is/are not set to "recovered".

Ueno discloses a network management system comprising:

- a storage unit storing backup connection information data containing information on the backup connections comprising the alternative route corresponding to each currently-used route, currently-used route data containing information on the currently-used route(s) corresponding to each backup connection and alternative route management data for managing setting status of the backup connections comprising the alternative route(s) (abstract and paragraphs 0112-0119);

- switching the setting status of the backup connections in the alternative route management data corresponding to the identified currently-used route(s) to a setting completion and determining a recovery completion of the currently-used route(s) when the setting status of all the backup connections corresponding to the currently-used route(s) to which the failure(s) has/have occurred become the setting completion (abstract and paragraphs 0112-0119).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify AAPA by including an alternate route information storage unit for storing and setting alternate route information for links on the network when a fault occurs for the purpose of proving a network management system which is able to shorten a time required up to detecting a fault after the occurrence of the fault and to reduce a network communication quality deterioration in a network management system performing a fault restoration process in a hierarchical network.

As per claim **6**, AAPA discloses the invention substantially as claims discussed above.

However, AAPA does not explicitly disclose:

- wherein the determination unit, when switching back from the alternative route(s) to the currently-used route(s), identifies the backup connections corresponding to the alternative route(s) based on the backup connection information data, reduces by one (1) the number of the identified backup connections in the overlapping connection management data, and releases the backup connections of which the number has become zero (0).

Ueno discloses a network management system comprising:

- wherein the determination unit, when switching back from the alternative route(s) to the currently-used route(s), identifies the backup connections corresponding to the alternative route(s) based on the backup connection information data, reduces by one (1) the number of the identified backup connections in the overlapping connection management data, and releases the backup connections of which the number has become zero (0) (abstract and paragraphs 0112-0119).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify AAPA by including an alternate route information storage unit for storing and setting alternate route information for links on the network when a fault occurs for the purpose of proving a network management system which is able to shorten a time required up to detecting a fault after the occurrence of the fault and to reduce a network communication quality deterioration in a network management system performing a fault restoration process in a hierarchical network.

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

        U.S. Pat. No. 6,898,630 to Ueno et al

        U.S. Pat. No. 5,615,254 to Qui et al

        U.S. Pat. No. 5,513,345 to Sato et al

        U.S. Pat. No. 6,327,669 to Croslin

        U.S. Pat. No. 6,163,525 to Bentall et al

        Any inquiry concerning this communication or earlier communications from the

examiner should be directed to LASHONDA T. JACOBS whose telephone number is (571)272-

4004. The examiner can normally be reached on 8:30 A.M.-5:00 P.M..

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

        Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LaShonda T Jacobs/
Primary Examiner, Art Unit 2157

Ltj
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